



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/532,275	03/21/2000	Masaki Ukai	826.1595/JDH	7491

21171 7590 01/29/2004

STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

KIM, KENNETH S

ART UNIT PAPER NUMBER

2111

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/532,275

Applicant(s)

UKAI, MASAKI

Examiner

Kenneth S KIM

Art Unit

2111

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18-40 and 42-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18-40, 42-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.


KENNETH S. KIM
PRIMARY EXAMINER

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

1. Claims 1-16, 18-40, and 42-48 have been elected for examination and claims 17 and 41 have been canceled as non-elected.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-16, 8-40, and 42-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claims 1 and 26, the nature of control over the memory unit is not clear.

(b) Claim 8, "the several clock cycles" lacks antecedent basis.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-7, 9-13, 15, 18-25, 26-37, 39, and 41-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Tran et al, U.S. Patent No. 5,875, 324.

Tran et al teaches the invention as claimed in claim 1 including a branch history information write control device in an instruction execution processing apparatus comprising :

(a) a memory unit storing an instruction string (col. 6, line 6),
(b) a branch prediction unit performing a branch prediction of a branch instruction (220),
(c) a control unit controlling in such a way that writing of branch history information in the branch prediction unit and control over the memory unit may not occur simultaneously (col. 10, line 41), and

further teaches as in claims 2-7, 9-13, 15, 18-25,

(d) wherein the writing is in timing such that said memory unit cannot accept an instruction fetch request (col. 2, lines 14 and 27; col. 10, line 42; col. 11, lines 1 and 11)
– claim 2,

(e) wherein the writing is in timing for making an instruction pre-fetch request (pre-fetch is not based on fetch PC address and hence can be made while fetch PC address is invalid) – claim 3,

(f) wherein the writing occurs after several clock cycle from the branch misprediction (col. 10, line 65) – claim 4,

(g) wherein the writing occurs after a re-instruction fetch request (for correct address; col. 2, line 26) – claims 5 and 9,

(h) wherein a temporary instruction buffer (instruction cache) is provided and the writing occurs if the buffer is empty (a cache miss; col. 11, line 1) – claims 6 and 7,

(i) wherein a write reservation station for temporarily storing the history information

is provided (256; col. 10, line 25) and is not replaced until update occurs – claims 10-13, 18, and 19,

(j) wherein the history information for uncompleted branch instruction is held in the reservation station for immediate second branch instruction (col. 10, lines 44-54) – claim 15,

(k) wherein the control unit identifies each instruction by an ID (250, col. 10, line 28) – claim 20,

(l) wherein the history information in the reservation station is nullified upon occurrence of interruption of execution of the branch instruction (nullifying stale data upon interrupt is well known; col. 12, line 34) – claim 21,

(m) wherein the history information in the reservation station is bypassed to the prediction unit (col. 10, line 43) – claims 22-24,

(n) wherein dual port for writing and reading is used for holding history information (col. 2, line 4) – claim 25.

The method claims 26-37, 39, 42-48 are equivalently rejected based on the same reason.

[**NOTE:** Applicant's argument in the previous response, now made moot by non-entry, in page 13, lines 10-12 and 17-20, seem to indicate that the fetch request is not necessarily given the priority over the update, by emphasizing "in a way not to degrade the function". This point is ambiguous, since the performance degradation occurs when the fetch request is not given the priority.]

Art Unit: 2111

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

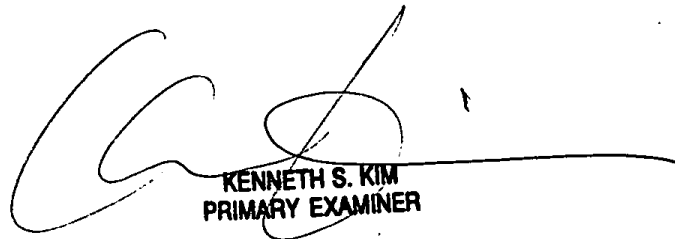
Hilgendorf et al taught a method of predicting return addresses.

7. Claims 14, 16, 38, and 40 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth S KIM whose telephone number is (703) 305-9693. The examiner can normally be reached on M-F (8:30-17:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (703) 305-9712. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



KENNETH S. KIM
PRIMARY EXAMINER